

CLAIMS

1. Insertion catheter carrying a vascular prosthesis without a supporting structure for insertion of said vascular prosthesis into a vessel, with an elongate, substantially tubular catheter cover having a proximal end and a distal end, an outlet for said vascular prosthesis being provided at said distal end, said outlet having a cross-sectional shape differing from a circular shape, and the cross-sectional area defined by said outlet being smaller than the cross-sectional area of said vascular prosthesis inserted in said vessel in the opened, unexpanded state, wherein a device for folding said vascular prosthesis extends inside said catheter cover in a section thereof adjoining said outlet, so that said vascular prosthesis on passing through said outlet assumes a cross-sectional shape required therefor.
2. Insertion catheter in accordance with Claim 1, wherein the outer contour of said outlet has a circumferential length corresponding at least to the circumference of said vascular prosthesis inserted in said vessel.
3. Insertion catheter in accordance with Claim 1, wherein the outer contour of said outlet has a circumferential length which is smaller than the outer circumference of said vascular prosthesis inserted in said vessel.

4. Insertion catheter in accordance with Claim 3, wherein said outlet has the shape of a rectangle which has a shorter side edge with a width corresponding at least to an even-numbered multiple of a wall thickness of said vascular prosthesis.
5. Insertion catheter in accordance with Claim 3, wherein the cross-sectional area of said outlet is substantially identical to the cross-sectional area of a vascular prosthesis which is folded to its smallest possible cross section and is to be brought out through the outlet area.
6. Insertion catheter in accordance with Claim 1, wherein the distal end comprises a guide body.
7. Insertion catheter in accordance with Claim 6, wherein said guide body is displaceable relative to said catheter cover in a longitudinal direction predetermined by said catheter cover.
8. Insertion catheter in accordance with Claim 6, wherein said guide body is arranged at the end of a guide rod extending through said catheter cover.
9. Insertion catheter in accordance with Claim 8, wherein at least one holding body alterable in a radial direction in its outer circumference is arranged on said guide rod in the area of said guide body.
10. Insertion catheter in accordance with Claim 8, wherein at least one holding body alterable in a radial direction in its outer circumference is arranged on said vascular prosthesis in the area of said guide body.

11. Insertion catheter in accordance with Claim 10, wherein said holding body comprises a self-expanding vascular support.
12. Insertion catheter in accordance with Claim 11, wherein said vascular support is formed by a metal.
13. Insertion catheter in accordance with Claim 9, wherein said holding body is inflatable by means of a fluid.
14. Insertion catheter in accordance with Claim 13, wherein said holding body comprises a balloon.
15. Insertion catheter in accordance with Claim 13, wherein a fluid line which is in fluid communication with the interior of said holding body extends within said guide rod.
16. Insertion catheter in accordance with Claim 9, wherein said holding body surrounds said guide rod in the shape of a ring.
17. Insertion catheter in accordance with Claim 6, wherein said distal end of said catheter cover and a proximal end of said guide body have a complementary shape.
18. Insertion catheter in accordance with Claim 17, wherein said distal end of said catheter cover is formed by an outer cone and said proximal end of said guide body by an inner cone.
19. Insertion catheter in accordance with Claim 6, wherein said distal end of said guide body has a rounded-off tip.

20. Insertion catheter in accordance with Claim 6, wherein said distal end of said catheter cover is closable by said guide body.
21. Insertion catheter in accordance with Claim 6, wherein at least two substantially rod-shaped clamping fingers whose distal ends point in the direction towards said guide body are arranged at said distal end of said catheter cover.
22. Insertion catheter in accordance with Claim 21, wherein clamping finger receptacles for receiving the distal ends of said clamping fingers are provided on said guide body.
23. Insertion catheter in accordance with Claim 21, wherein the distal end of said clamping fingers is movable in a radial direction.
24. Insertion catheter in accordance with Claim 23, wherein said clamping fingers are pivotable away from an axis of symmetry of said vessel in the direction towards an inside wall of said vessel.
25. Insertion catheter in accordance with Claim 1, wherein an inside guide for said vascular prosthesis extends within said catheter cover, said inside guide is arranged in the interior of said vascular prosthesis located within said insertion catheter, and said inside guide has a cross-sectional shape which is geometrically similar to said outlet at least in the area of said outlet.

26. Insertion catheter in accordance with Claim 6, wherein an inside guide for said vascular prosthesis extends within said catheter cover, said inside guide is arranged in the interior of said vascular prosthesis located within said insertion catheter, and said inside guide has a cross-sectional shape which is geometrically similar to said outlet at least in the area of said outlet.
27. Insertion catheter in accordance with Claim 25, wherein said inside guide extends essentially over the entire length of said catheter cover.
28. Insertion catheter in accordance with Claim 1, wherein the outer contour of said outlet has concave and convex curvature areas.
29. Insertion catheter in accordance with Claim 28, wherein the clamping finger is arranged adjacent to a concave curvature area of the outer contour of said outlet.
30. Insertion catheter in accordance with Claim 29, wherein said clamping finger forms with part of its surface said concave curvature area.
31. Insertion catheter in accordance with Claim 1, wherein said catheter cover has an inside hollow cross-sectional area which is geometrically similar to said outlet at least in a section of said catheter cover.
32. Insertion catheter in accordance with Claim 1, wherein said device for folding is formed by guide projections protruding from an inside wall of said catheter cover.

33. Insertion catheter in accordance with Claim 1, wherein the outside diameter of said catheter cover is smaller than the inside diameter of said opened vascular prosthesis.
34. Insertion catheter in accordance with Claim 6, wherein the outside diameter of said catheter cover corresponds to the outside diameter of said guide body.
35. Insertion catheter in accordance with Claim 1, wherein said catheter cover is formed by an elastic tube.
36. Insertion catheter in accordance with Claim 19, wherein said holding body is radially partially delimited by said clamping fingers in an inserting position of said insertion catheter.
37. Insertion catheter in accordance with Claim 21, wherein said holding body is radially at least partially surrounded by said guide body in an inserting position of said insertion catheter.
38. Insertion catheter in accordance with Claim 1, wherein a grip part surrounding said catheter cover is provided at the proximal end of said catheter cover.
39. Insertion catheter in accordance with Claim 38, wherein said grip part is displaceable relative to said catheter cover.
40. Insertion catheter in accordance with Claim 38, wherein radially inwardly protruding projections are arranged on said grip part.

41. Insertion catheter in accordance with Claim 40, wherein said projections are formed by knife blades sharpened in the direction towards the distal end.
42. Insertion catheter in accordance with Claim 33, wherein said outlet essentially has a dog's bone shape.
43. Insertion catheter in accordance with Claim 33, wherein said outlet essentially has a mushroom shape.
44. Insertion catheter in accordance with Claim 33, wherein said outlet essentially has a cloverleaf shape.
45. Insertion catheter in accordance with Claim 44, wherein said cloverleaf shape has leaves of different sizes.
46. Insertion catheter in accordance with Claim 33, wherein said outlet essentially has a cross shape with rounded-off edges.
47. Insertion catheter in accordance with Claim 33, wherein said outlet essentially has a crescent or half-moon shape.